

layer of ruthenium oxide having at least one pitted surface situated on the conductive layer. Derderian does not teach or suggest such an enhanced-surface-area conductive structure. Instead, Derderian discloses a discontinuous first conductive layer 126 that is situated on a barrier layer 122, preferably of borophosphosilicate glass. Col. 3, lines 64-67 and col. 4, lines 28-34. According to Derderian, a second conductive material 130 is selectively deposited over the discontinuous first conductive layer 126 so that enlarged protrusions are formed over its surface. Col. 4, lines 46-59 and Fig. 6. Derderian does not teach or suggest a conductive layer situated on a surface of a supporting structure and a layer of ruthenium oxide having at least one pitted surface situated on the conductive layer. Therefore, claim 30 is properly allowable over Derderian.

Claim 31 recites a capacitor structure in an integrated circuit. The capacitor structure comprises a supporting structure, a conductive layer situated on a surface of the supporting structure, a layer of conductive metallic oxide having a pitted surface situated on the conductive layer, and a layer of dielectric material disposed conformally on the pitted surface. Derderian does not teach or suggest such a capacitor structure. According to Derderian, a discontinuous layer of a first conductive material 126 is deposited on a borophosphosilicate glass barrier layer 122, and a second conductive material 130 is deposited to form enlarged protrusions. Derderian does not teach or suggest a conductive layer situated on a surface of a supporting structure and a layer of conductive metallic oxide having a pitted surface situated on the conductive layer. Therefore, claim 31 and dependent claims 32-36 are properly allowable over Derderian.

Claim 37 recites a conductive structure in an integrated circuit that comprises a layer of conductive material with islands of conductive metallic oxide disposed thereon. Derderian does not teach or suggest such a conductive structure. Instead, Derderian discloses a discontinuous layer of a first conductive material 126 that is deposited on a borophosphosilicate glass barrier layer 122. Derderian does not teach or suggest islands of conductive metal oxide disposed on a layer of conductive material as recited in claim 37, and claim 37 and dependent claim 38 are properly allowable over Derderian.

Claim 39 recites an integrated circuit capacitor structure that comprises a layer of conductive material with islands of conductive metallic oxide disposed thereon, and a layer of dielectric material disposed conformally on the islands of conductive metallic oxide. A portion of a surface of the layer of conductive material is exposed between the islands. Derderian does

not teach or suggest such a structure. According to Derderian, a discontinuous layer of a first conductive material 126 is deposited on a borophosphosilicate glass barrier layer 122, and Derderian does not teach or suggest a layer of conductive material with islands of conductive material thereon. Accordingly, claim 39 and dependent claims 40-41 are properly allowable over Derderian.

Claim 42 recites an integrated circuit that comprises a plurality of capacitors. The integrated circuit includes a conductive layer, a layer of conductive metallic oxide having a pitted surface situated on the conductive layer, and a layer of dielectric material disposed conformally on the pitted surface. Derderian does not teach or suggest such an integrated circuit. According to Derderian, a discontinuous layer of a first conductive material 126 is deposited on a borophosphosilicate glass barrier layer 122, and Derderian does not teach or suggest a layer of conductive metallic oxide having a pitted surface situated on a conductive layer. Therefore, claim 42 is properly allowable over Derderian.

Claims 34-35 stand rejected as allegedly obvious over Derderian. This rejection is traversed. As noted above, claims 34-35 depend from allowable claims, and are therefore properly allowable. In addition, Applicants request withdrawal of this rejection under 35 U.S.C. § 103 as the subject application and Derderian were, at the time the invention of the subject application was made, both owned by Micron Technology, Inc. Subject matter that qualifies as prior art only under 35 U.S.C. § 102(e) is disqualified for use in rejections under 35 U.S.C. § 103 if this subject matter and the claimed invention were commonly owned at the time of the invention. Therefore, withdrawal of this rejection is requested.

New claims 43-50 recite features and combinations of features that are neither taught nor suggested by Derderian. For example, claim 43 recites an enhanced-surface-area conductive structure that comprises a conductive layer with at least one surface having a plurality of pits, wherein the pits are associated with a ruthenium phase in the conductive layer. Derderian does not teach or suggest a surface having a plurality of pits associated with a ruthenium phase. New claim 44 recites a capacitor structure that comprises a layer of conductive metallic oxide with a surface having a plurality of pits associated with a metallic phase in the conductive layer, and a layer of dielectric material disposed conformally on the pitted surface. Derderian does not teach or suggest such a capacitor structure. Claim 45 recites a capacitor structure that comprises a supporting structure and a layer of conductive metallic oxide having a surface that includes a

plurality of pits associated with a metallic phase in the conductive metallic oxide layer. A layer of dielectric material is disposed conformally on the pitted surface. Derderian does not teach or suggest a layer of conductive metallic oxide having a surface that includes a plurality of pits associated with a metallic phase in the layer of conductive metallic oxide. Claim 46 further recites that the capacitor structure includes a continuous layer of conductive material disposed on the layer of dielectric material. Derderian does not teach or suggest such a continuous layer of conductive material.

In view of the preceding amendments and remarks, claims 30-50 are in condition for allowance and action to such end is requested.

Respectfully submitted,

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**Marked-up Version of Amended Claims
Pursuant to 37 C.F.R. §§ 1.121(b)-(c)**

30. (Amended) An enhanced-surface-area conductive structure in an integrated circuit, the structure comprising:

a supporting structure;

a conductive layer situated on a surface of the supporting structure; and

a layer of ruthenium oxide having at least one pitted surface situated on the conductive layer.

31. (Amended) A capacitor structure in an integrated circuit, the structure comprising:

a supporting structure;

a conductive layer situated on a surface of the supporting structure;

a layer of conductive metallic oxide having a pitted surface situated on the conductive layer; and

[with] a layer of dielectric material disposed conformally on the pitted surface.

42. (Amended) An integrated circuit, comprising a plurality of capacitors that include a conductive layer, a layer of conductive metallic oxide having a pitted surface situated on the conductive layer, **[with]** and a layer of dielectric material disposed conformally on the pitted surface.